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ABSTRACT

The experiences of the 3-year Minnesota Severely Handicapped Delivery System Project have led to a model which utilizes resources of regional systems as key elements of a differentiated system for educational service delivery to the handicapped in rural areas and involves state education agencies, statewide regional centers, local education units, and the strengths and human capital of local communities. Problems rural areas have in delivering services to the handicapped are difficulty in attracting specialist teachers, travel costs to send children to specialized programs elsewhere, underidentification or inaccurate diagnosis of handicapped children, and lack of a clearly defined regional structure of service delivery for handicapped persons. The proposed model utilizes local strengths to the maximum extent and relies on regional resources for special conditions requiring expertise beyond that available locally. The core of the model involves strengthening the role of regional units which provide professional guidance/training, technical assistance, and supervision to local staff, while simultaneously strengthening local skills and encouraging involvement of teachers, parents, and community members. The model also includes strategies to serve needs of underserved groups of handicapped persons, uses technology for all phases of service delivery to the severely handicapped, and incorporates a management information system and a component to evaluate impact and cost-effectiveness. (MH)

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Providing Services for Handicapped Persons in Rural/Sparsely Populated Areas

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OVERVIEW

Attempts to deliver quality educational and other supportive services to handicapped children, youth, and adults, have met with a fair measure of success in the urban centers of most western developed nations. In sparsely populated areas, however, the conventional urban solutions have not been as effective, in that they fail to deliver the services as intended and they fail to utilize the strengths existing in the rural areas. The problems of providing educational and other supportive services to handicapped children and adults in the United States parallel those of other Western developed nations in most respects. This paper will focus on the major issues involved in the delivery of special educational services to handicapped children, youth, and young adults in rural areas, using the experiences of the Minnesota Severely Handicapped Delivery System Project (MSHDS) to illustrate some pervasive problems which plague rural service delivery systems.

The MSHDS project, funded in 1982 by the U.S. Department of Education, Special Education Programs, represents a joint effort between the Department of Educational Psychology at the University of Minnesota and the Minnesota State Department of Education. This three-year project is developing and field testing a model for service delivery that will facilitate communication and cooperation among all service providers to handicapped persons and disseminate information to local personnel to enable them to solve specific problems of handicapped children, youth and young adults.

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A model specifically designed for rural areas will be presented as a possible solution to the need to reduce the excessive costs associated with rural handicapped education and related support services and to provide appropriate, quality, community-based programs. Because schools have primary responsibility for key developmental services for handicapped persons, this paper will focus on strategies for improving the effectiveness and responsiveness of schools.

BACKGROUND (P.L. 94-142)

In 1975, the U.S. Congress passed a landmark piece of legislation called the Education for All Handicapped Children Act of 1975 to meet the needs of millions of handicapped children who were not receiving appropriate educational services. The intent of this law (P.L. 94-142) was

> ...to ensure that all handicapped children have available to them... a free appropriate education which emphasizes special needs, to assure the rights of handicapped children and their parents or guardians are protected, to assist states and localities to provide for the education of all handicapped children, and to assess and assure the effectiveness of efforts to educate handicapped children (Public Law 94-142, 1975, Sec. 3c).

The provisions of P.L. 94-142 are extensive; but chief among the many requirements of the act is that handicapped children receive a free and appropriate education that permits, as much as possible, experience with non-handicapped students in the least restrictive setting. Other provisions require specific a) child identification and educational evaluation activities, b) development of an individualized education plan (IEP), c) procedural safeguards for handicapped children and their parents, and designated responsibilities for and coordination of comprehensive services for handicapped children.

Since the enactment of the legislation, every state and local education agency in the United States has been required to develop methods to ensure that handicapped children and youth receive educational opportunities which are appropriate to their needs, regardless of the type or severity of their handicapping condition. While there have been a number of innovative and successful projects and methodologies designed to address specific problems in implementation since that time, the current status of the service delivery system can be best characterized as being highly variable and uneven in quality. This unevenness is particularly apparent if we compare services in metropolitan and rural areas, with the former typically having a well-organized and highly specialized system of services, in contrast with a rural system which is fragmented and frequently lacking in essential services and coordination.

HANDICAPPED STUDENTS IN RURAL AREAS

The special needs of rural school districts may be better understood by examining the relevant characteristics of rural areas in general and rural school districts in particular. Definitions of rural vary widely, as do estimates of the numbers of handicapped and non-handicapped students in these rural areas. Accurate estimates of rural handicapped children have been hindered by both ambiguity of definitions and limited communication in sparsely populated areas. The National Center for Educational Statistics, for example, does not report data on districts having fewer than 2500 pupils, which seriously limits the identification of handicapped students in low population density areas. In 1975, the U.S. Census determined that there were more than 15 million students in "nonmetropolitan," or rural schools, which constituted 32% of all children in public schools. If we use the generally accepted handicapped incidence rate of 10%, then

an estimated 1.5 million handicapped students live in nonmetropolitan or rural areas. Estimates by the U.S. Bureau of the Census (1976), however, placed this figure at 1/10 this number, which probably reflected a failure to identify handicapped children in rural areas.

Prevalence rates, however, do not tell us much about the unique nature of rural areas nor of their particular problems in dealing with their handicapped students. Rural communities have been described in terms so various, depending upon the sympathies and perspective of the author, that it is difficult to see that they have anything in common other than low population density. Closer examination suggests that Sher's (1978) observation that rural America may "represent the single most diverse and heterogeneous group of individuals and communities in our society" appears to be a more accurate description than the typically stereotyped descriptions such as "a more sparsely populated version of urban America," "impoverished" by every imaginable standard, or the "good life" (Nachtigal, 1981). The bulk of the writing about rural populations vacillates between descriptions of the "rural poor" and "traditional middle America" with resulting confusion about the characteristics of rural populations, including their educational needs and strengths.

Nachtigal suggests a taxonomy of rural America which would differentiate between the three major types of rural communities, the "rural poor," "traditional middle America" and "communities in transition." This rough taxonomy should be useful in suggesting the broad types of problems likely to be encountered within the community and the differing types of public policy approaches which might be effective within each of these groupings.

Similarly, rural schools are also viewed variously, with some writers feeling they reflect the pluralism found among the communities they serve (Sher, 1978) whereas others feel the only major differences have to do with the amount of resources available for education. Comparisons of urban and rural schools, however, point to some significant differences which clearly impact upon the ability of rural schools to deliver special education services. In particular, rural schools often have more financial constraints due to a lower tax base (Heller, 1976); greater expenditures for transportation, which reduces the funds available for education; lack of specialized equipment, teaching materials, and access to outside resources such as universities; fewer experienced, well-trained and/or specialized teachers and administrators, more limited course offerings, more student absenteeism, and, in general, more isolation from other cultural influences and fewer ancillary services. The job of a rural teacher is characterized as being more demanding and complex than that of an urban or suburban teacher (Muse, 1977).

EXTENT AND IMPLICATIONS OF SPARSITY

Sparsity is characteristic of vast areas of the United States, and it creates particularly serious problems for the design and delivery of special education services. To illustrate the extent and implications of sparsity, we might examine the population statistics for a state which is not atypical, that of Minnesota, wherein approximately one-half the population resides in one major metropolitan area, in a geographic area comprising less than 5% of the state. The remainder is scattered throughout thinly populated areas with a few smaller urban centers. Population density in the metro area is about 700 persons per square mile, which is sufficiently dense to permit grouping by type of disability, with

specialists being matched to the type of handicap, if that style of service is desired. It also permits, indeed encourages, extensive staff development and specialized school personnel. In the nonmetropolitan areas, total population density ranges from 10-60 persons/square mile, with large distances, sometimes up to or exceeding 100 miles, between local school districts and regional centers. In such areas, one will see few if any handicapped children in any one school district. Hence, if narrowly trained specialists were to be hired by the district, they might see no more than one or two children who matched their area of specialization. In addition, it is quite possible that the child would need a number of different types of services, such as special assistance in reading, speech therapy, physical therapy, psychological services, and so forth, requiring the services of many other specialists. The more severe the type of handicap, the more aggravated this situation would become.

Even the best-intentioned rural districts would find it virtually impossible to fully meet the needs of one or two handicapped students on a local, independent basis. And even if there were sufficient numbers of handicapped students to justify hiring specialists, such specialists are difficult to attract and retain in rural areas. Hence, the accepted rural practice has been to send such students to larger centers which have highly specialized professional staff. At a minimum, this means that the child spends a substantial amount of time in transit between home and school, often over rough terrain, which is a hardship for the child and costly to the local district. Other alternatives have been to place the child in group or foster homes or in residential facilities, which in effect gives priority to educational needs over family and community cohesiveness. This also is contrary to the principle of educating the child in the least

restrictive environment, i.e. of educating handicapped and nonhandicapped peers in the same school setting to the maximum extent possible.

A problem which is particularly germane to rural areas deserves special mention. The problem most frequently cited as hindering efforts in rural areas to deliver special education services is the difficulty of attracting specialist teachers. These highly accredited teachers have historically been harder to recruit and retain in rural areas, in part due to the substantially lower salaries for nonmetropolitan teachers (24-47% lower than metropolitan teachers), and in part due to the characteristics of rural schools and communities. The job of a rural school teacher is often considered more demanding and offers fewer supportive services. For example, rural teachers often teach multiple grades, with secondary teachers averaging five to six preparations per day (Sher, 1978) despite a situation in which appropriate commercially designed materials are less likely to be available to support the teacher. Teachers who do take and stay in jobs in rural schools tend to be from the local community or a similar community.

Although a number of projects have demonstrated that a variety of in-service training mechanisms, sophisticated training packages and consultative assistance can be effective in upgrading teacher skills in remote areas, these have not been incorporated on a large scale into common practice. Despite the promise of these innovations, most rural districts follow the practice of sending the child to a specialized program, regardless of the distance involved. At times, travel expenditures have exceeded program costs. Other children have been removed from their homes and sent to distant residential schools as a means of obtaining an education. In one state, state licensure requirements which mandate that only the fully licensed professional can perform services for a handicapped person have the unexpected

consequence of restricting the services or creating additional problems for the handicapped person and their families.

IDENTIFICATION AND CLASSIFICATION

Another concern for rural areas is the underidentification or inaccurate diagnosis of handicapped children. One might suspect that rural districts would have greater difficulties in identification and classification, in part due to limited access as well as limited personnel skilled in assessment, greater tolerance of marginality (Frith, 1977), and inaccurate information from parents. A study by Kurtz and Lamb (1977), for example, found that only 2% of the questionnaires completed by parents concerning the developmental problems of their children accurately predicted failure on the Denver Developmental Screening Test in a rural area. Nachtigal (1981) has observed that "guidelines and accountability procedures designed primarily for larger systems not only cause an excessive amount of work, but in some cases, ...just do not fit the reality of their schools and their communities." He suggests re-examining these mandates with respect to their appropriateness to rural areas and, in general, "promoting more general standards which encourage flexible and diverse strategies for their achievement."

SERVICE NEEDS

Perhaps the most serious problem which underlies or compounds many of the more specific delivery issues in rural areas is the lack of a clearly defined regional structure of service delivery for handicapped persons. In order to deliver an adequate array of educational and related services, the combined expertise of a large variety of specialists within education as well as related health, welfare, vocational, and other agencies is needed.

Rural school districts typically do not have such expertise available locally, and hence they tend to either "make do" with existing personnel or contract for services from other districts and agencies which are often quite distant from the local community.

These arrangements tend to be done on an ad hoc basis, rather than with planned assistance, staff sharing, and coordination on a regional or intermediate level sufficiently large to be able to coordinate and manage all necessary staffing and technical assistance needs for the extremely heterogenous group of students requiring special education. Hence, services vary considerably across districts, as do eligibility criteria and coordination with related agencies serving these populations.

Despite the presence of some cooperative and regional administrative organizations in the various states, and the encouraging trend toward more interagency agreements, recent needs assessments studies done by the MSHDS Project point to gaps which still exist in rural settings.

1. The most serious gap in the present delivery system is the absence of an efficient, coordinated system for the delivery of special education services to handicapped children and youth in rural areas.
2. The absence of specifically defined criteria for the identification and assessment of handicapped children is a barrier to appropriate identification and program planning efforts.
3. Particular populations are underidentified and underserved. Few programs and services exist for the severely emotionally disturbed, particularly in sparsely populated areas. Program planning for 0-3 year olds is inadequate and uncoordinated, since it is voluntary on the part of the schools.

4. Systematic personnel development activities are needed. There is a shortage of programs for preservice and inservice training. Non-metropolitan districts generally cannot afford to attract the highly specialized persons required to provide the handicapped child with a full range of services. Categorical licensure requirements further compound the problem of adequately meeting the full range of needs for handicapped children and youth.
5. Current assessment and IEP planning procedures need improvement. Utilization of available information and technology to assist these procedures lags behind the availability of such resources.
6. Vocational and related services are needed for post-high school level youth. Transitional service coordination for this age group is seriously needed, as are more realistic, "future" job training experiences.
7. Increased coordination and interagency agreements with other agencies, consumer groups and parents involved with the severely handicapped is needed.
8. Data collection and monitoring procedures need improvement to permit a systematic examination of current practices and procedures which would go beyond compliance monitoring. Systematic evaluation of program quality and effectiveness, as well as formal mechanisms for implementing an evaluation system at the state, regional and local level are needed.
9. Information/dissemination gaps regarding existing services, resources and technologies impede effective service delivery. Most of these gaps in service are being addressed to some extent by a variety of means, but the basic problem of a service system which is too

diversified and insufficiently coordinated at the regional and state level poses serious constraints for a truly comprehensive system of service delivery to handicapped children and youth in rural areas.

COOPERATIVE ARRANGEMENTS

Since local communities often lack sufficient numbers of handicapped persons to justify hiring specialists or to even qualify for federal funds, collaborative efforts are frequently necessary to implement comprehensive programs for handicapped persons. This situation is further aggravated by diminishing (real) resources in the present inflationary times. Cooperative arrangements between schools, communities and regions within states are extremely diverse, and in part state-determined or mediated, and vary enormously in their effectiveness in delivering services.

MERITS OF RURAL SCHOOLS AND COMMUNITIES

To this point, the deficiencies of rural schools have been discussed in great detail. Nevertheless, rural schools were not always viewed so negatively. Prior to World War II, rural schools were seen as respectable bearers of community traditions and values as well as educationally appropriate vehicles for sparsely populated areas. During the period from WWII until the mid-70's when the urban population boom diverted attention from rural areas to the more pressing and explosive urban issues, traditional rural schools steadily declined due to neglect. The neglect and inattention to the merits of rural schools that led to their systematic destruction was supported by the general perception, in both the United States and elsewhere, that rural schools were deficient, woefully lacking in staff and material resources and politically insignificant. The typical response to the situation

of relative population decline in rural areas in most Organization for Economic Cooperation and Development countries was to create boarding schools or to encourage consolidation or reorganization of rural schools, rather than attempting to strengthen local schools. With consolidation, lengthy travel distances to and from school became common for many rural school children, with little attention to the relative merits of fewer resources versus removal from the community. The situation for handicapped children is similar, of course, but more extreme, since they are fewer in number and hence must travel even greater distances to find appropriately staffed schools. Many other factors have combined to produce this situation for handicapped children, including historical precedents for separate facilities for the handicapped (Fox & Guess, 1980) and a technological ethos which strongly supported the notion that problems of all sorts were best dealt with by specialists, and that tended to ignore existing community strengths for meeting these problems in favor of professional care. The tradition of specialized care, segregated by disability type, underlies the licensing and reimbursement structure of most states today, which results in both teachers and handicapped students being narrowly pigeon-holed by type of handicapping condition rather than by assessed need or skills.

Fortunately, there has been a recently renewed interest in and respect for rural schools "as a natural laboratory for such innovative practices as individualized instruction, cross-age grouping, older students teaching younger students, using the community as a learning resource and 'mainstreaming' mildly handicapped children." (Sher, 1981). This new look at rural schools has come about in a number of countries, in part prompted by the realization that the population decline was reappearing, as predicted, and in part due

to the interest in decentralization of government initiated either at the federal level, as in the United States, or from local initiatives. To some, this has meant abandoning the pursuit of uniformity in education (i.e., the urban model for all) and substituting instead "Uniquely rural solutions to uniquely rural problems" (Sher, 1981). The prevalent assumption that rural schools were unique only in their deficiencies led to the conclusion that the urban criteria for excellence in special education, i.e., highly trained specialists delivering direct services, regardless of geography, and that the rural areas had nothing to offer their urban counterparts. In fact, the urban model may be inherently incapable of delivering on this promise in rural areas. Despite this recent burst of enthusiasm for rural schools, however, it should be noted that rural schools in advanced nations have generally failed to serve handicapped children well. An examination of the strengths of the rural school, for the average child, should point to some similar directions for rural handicapped children, utilizing a rural model, rather than an adaptation of the urban-inspired consolidation model.

PRELIMINARY STEPS TO DEVELOPING A MODEL

Needs Assessment

The first step in the development of a model for service delivery is to define the needs of the population, including an assessment of the capabilities of current administrative structures and programs to deliver a comprehensive system of services, the extent of support at the local, regional and state level for the goals of the proposed model, and the gaps and duplications in the present state system.

Different methods of service delivery could then be compared with respect to their differential effectiveness in providing services which 1) are community based, 2) integrated with nonhandicapped students, 3) cover the full range of educational need, 4) are cost-effective, and 5) offer a uniform system of special education services and related support services within the particular administrative structure. To the extent possible, gaps in information, attitudinal and geographic barriers, eligibility, costs and other factors which limit the accessibility of potentially available services should be addressed.

Cost

The analysis of cost factors is always an important concern of decision-makers. The costs of different existing service options, the methods used to secure funding, including tax bases to generate funds, and funding which is potentially available but underutilized, are highly relevant. A critical area to examine involves the relations between the level of funding available, the strategies for allocating these monies and the impact on different aspects of the service system. Examples of this include the impact on the "prevention" or early intervention services of current funding strategies, and the effects of such programs on the immediate and long-term costs for services. Preschool services, for example, may be somewhat more costly in the short term, but their demonstrated effectiveness in reducing long-term impairment and dependency is highly cost-efficient in the long run. Other important considerations include the effect of funding levels and allocation strategies on the ability of existing programs to offer adequate and reimburseable services, and on the movement of clients through a continuum of services into the least restrictive setting.

Objectives

Based on the data analysis, a comprehensive model for the statewide delivery of special education services would then be developed, utilizing the strengths currently existing in the system. Program objectives would include ensuring that severely handicapped persons have access to appropriately knowledgeable service persons as needed, while at the same time remaining in the least restrictive environment and in their home communities to the maximum extent possible. Possibilities for system improvement would focus on the role of the regional units within states in the development of increased competencies at the local level and in a coordinated system of service delivery. Given the widely differing roles of the regional units currently in operation, alternative strategies would have to be explored dependent upon the relations between regional units and the local schools and communities.

DESIGN OF A STATEWIDE MODEL FOR SERVICE DELIVERY—GENERAL CONSIDERATIONS

Some general considerations frequently cited for the development of a good model include that it should be relatively simple and easily available to local staff, while at the same time comprehensive and generic enough to accomodate great diversity in practices and sufficiently dynamic to be able to change with shifts in funding or legislation.

In addition, it should have a well explicated philosophical base and organizational structure; it should incorporate the best available research and theory on organizational development and program administration, and it should be sufficiently well-defined to be capable of identifying actual practices and evaluating each component of the model. It has been noted that a good model not only demonstrates that particular social problems can be solved in a particular way, but also provides a "prototype or pattern"

for replication in other settings where similar services could be provided. Its importance rests on its potential for dissemination and utilization of service strategies of known cost and effectiveness." (Paine and Bellamy, 1980).

In the development of a workable program model, it is also essential to give serious consideration to the interests and input of those individuals who will be affected by this model. A model "imposed from above," without such input, is likely to be lacking in sensitivity to essential variations in local situations, and, even if totally adequate, will not be fully supported and hence will suffer in the implementation phase. A focus upon the identified needs and problems in the region, with the aim of developing, in collaboration with local and regional professionals, administrators and community groups, strategies which might best meet these needs may circumvent or allay some of the structural and attitudinal problems associated with attempting to overlay a new model upon an existing system.

In social welfare matters, it is almost always necessary to meet problems with their most cost-effective solutions, rather than to protect existing systems, styles of organization, or methods of intervention. This implies the need to capitalize on existing resources as well as build connections between service agencies and the local community. Another component of a cost-effective model is the particular management information system employed for budget and planning purposes. This includes both the system of accounting for service costs and the methods employed for data collection and analysis. Traditional systems, for example, tend to limit cost accounting to the specific services rather than viewing the total costs for a client as he or she passes through the various service agencies from the beginning to the end of their contact with these agencies.

THE CURRENT MODEL

To briefly review, the prevailing model in the United States for the delivery of special education services to the handicapped is an urban "specialist-centered" model which focuses on matching the specialist to the person's particular handicapping condition. This model may be appropriate when sufficient numbers of handicapped persons reside within a community to permit grouping by some type of common variable such as age, handicapping condition, learning modality, etc., although it frequently results in handicapped children being educated in largely segregated settings and may not be either the most effective or the most efficient. The more severe the handicapping condition, the more likely the student is to be educated separately from nonhandicapped students. Despite the fact that rural school districts have unique problems, including scarce and unevenly distributed professional resources, they still largely adhere to this urban model.

RATIONALE FOR PROPOSED MODEL

The proposed model is based upon the following set of observations and assumptions:

1. Most states have large rural areas which are fairly isolated and sparsely populated. The prevailing urban model for special education service delivery is not effective for large segments of the United States.
2. Handicapped children and youth should not be separated from their homes for educational, training and related services, unless absolutely necessary.
3. Handicapped children and youth will derive benefits from educational experiences which are integrated to the maximum extent possible with nonhandicapped students.

4. Many of the educational needs of handicapped children and youth are generic and could be met by persons trained in functional skills of curriculum and instruction.

The urban model is not appropriate for large areas of the United States which are insufficiently urbanized to support this type of service delivery system. Conventional alternatives have been to move handicapped persons to residential facilities, to place them in foster or group homes near centers having specialized staff, or to require them to travel long distances to received specialized services. In other cases, they simply do not receive adequate services. These alternatives are not satisfactory in light of the mandates and evidence supporting the necessity and educational value of 1) maintaining the person in his/her home environment, and 2) integrating handicapped students with nonhandicapped peers to the maximum extent possible. In addition, more restrictive and segregated options are extremely costly. Nevertheless, handicapped students do have a variety of specialized service needs which must be met. Hence, the dual objectives are to assure that handicapped students have access to appropriate training, instruction, and specialized services as needed, while at the same time remaining within their homes, communities, and in the least restrictive environment.

The dilemma is: Given limited resources, how can these two seemingly incompatible goals be attained in a cost-effective and quality manner. The demand for community based services points to one possible solution. If one considers the specific needs of the handicapped person, and the competencies of local personnel, it may be argued that:

1. The fundamental, developmental tasks of social competence and social adaptability are the skills most frequently needed by handicapped children. Even severely handicapped children are more alike than different in their educational and related service needs (Fox & Guess, 1980) and hence the rationale for grouping by disability type seems to be related more to tradition and convenience than to their actual needs. New methods are currently available to analyze and identify these developmental tasks (Weatherman, 1983).
2. The most reliable, stable people available to work with handicapped persons in rural communities are the indigenous people who have a commitment to the area and knowledge of the broader local environment. These include local teachers as well as parents, aides and volunteers. Thus, direct intervention could be best accomplished by people committed to the local area.
3. Training persons for direct intervention efforts need not be highly technical. The basic tasks which must be mastered by the handicapped person are slow moving tasks which are learned over the course of many years. Training can be matched to the specific developmental needs identified through instruments such as the Scales of Independent Behavior.
4. By grouping handicapped students according to the kinds of tasks required for social competence and adaptability, rather than by type of handicapping condition, handicapped students can be better integrated for socialization and other experiences with same-age peers having more equivalent cognitive abilities. For example,

mentally retarded students might be grouped with those having somewhat milder cognitive impairments; physically handicapped, emotionally disturbed, and sensory impaired students could often be grouped with those having normal levels of cognitive abilities (i.e., regular classes for the most part).

5. Special conditions which require expertise beyond that available to local staff could be accommodated in a variety of ways, using assistance from special education personnel at the regional level. Current technical aids can assist in the process of delivering highly specialized services to handicapped children as needed, including the use of video, interactive TV, etc. to aid in the assessment, program planning and implementation process. Regional consultants could assist at the local or cooperative level for such needs. The existance of a "special need" does not in itself imply that many of the student's other needs could not be met at the local level, nor that special needs require special placements.

6. Each sector of the delivery system has particular functions for which it is particularly suited. Thus, highly specialized personnel in various disability areas could be employed at the regional level, with training, quality assurance, and consultative functions. Coordination and sharing of services and expertise should reduce costs and ensure higher quality services, and the regional units within each state are the logical units for such coordination.

MODEL IMPLEMENTATION

The first factor which must be addressed prior to implementation involves securing a variance for the often rigid state rules and regulations which prohibit grouping by academic or social/adaptive needs rather than by diagnostic label or handicapping condition. Secondly, support from both key administrators and the community must be secured. The unique characteristics of the region also need to be thoroughly understood prior to implementation in order to adapt the model to existing strengths, weaknesses and constraints. This would include knowledge of the special education resource personnel available, the structure of special education leadership, the availability of other agency resources in the area, the status of technology vis a vis special education, the data collection and monitoring system in existence, the population of handicapped children in that area, criteria and procedures currently used to identify and assess handicapped students, practices in IEP development, programs and placements, community support, interagency networks, unique geographical characteristics, attitudes toward education of the handicapped, attitudes toward regionalized service delivery, and so forth.

Since the proposed model is one which will utilize local strengths to the maximum extent possible, variations in specialized personnel, funding base, and current status of programs are not expected to be critical in the success or failure of implementation, although they clearly are important in the ease and smoothness of operation. Community and local educator attitudes, however, are extremely important in this phase. Each strategy must be considered in light of local conditions, and local support must be generated for each particular task prior to and during the implementation phase.

REGIONAL COORDINATION

The basic core of this model involves strengthening the role of the statewide regional units or other intermediate units in providing professional guidance and training, technical assistance and supervision to local staff, while simultaneously strengthening the local community skills, including greater involvement on the part of regular teachers, parents, aides and volunteers in the direct service aspects of the educational process. The aim of this multi-leveled approach would be to delineate ways in which services could be coordinated at a level consistent with capability to provide a full range of services. Regional coordination and management of special education services would facilitate increased sharing of staff and costs as well as more systematic and comprehensive interagency coordination. In-service training programs would be managed and coordinated at the regional level, although implementation would be managed and coordinated at the regional level, although implementation could occur at various levels. Training would be designed to match the skills of local teachers, largely at the local level with quality assurance at the regional level. Both regular and special education teachers would be trained in more generic skills, such as functional curricula, behavior management skills, and social competence skills. Specialized professionals would be responsible for training and technical assistance at the regional level and the more highly specialized consultative services provided to the statewide regional centers from multi-state centers.

LOCAL ROLES

Designated local supervisors, such as the school principal, would be responsible for ensuring that the full range of the student's needs were met, including parental and other agency involvement where applicable, and regional supervisors would monitor the quality of professional service planning and delivery, including identification and assessment procedures; i.e., planning and program follow-through. This aspect of the model is similar to the matrix management model of dual responsibility to the local community as well as to one's professional affiliation. Case management would follow a "client pathway" model of responsibility, in which clients would be followed from the beginning to the end of their contact with service agencies.

Training of local educators and parents would permit more integrated community based services, as well as more parent involvement in program planning. Ultimately, this would enhance the capabilities of the local community to handle many of the less specialized educational and related service needs of the handicapped child.

UNDERSERVED POPULATIONS

Another component of the model would include strategies designed to address the needs of underserved groups of handicapped persons. Age groups for which there are no mandates or for which the school has minimal responsibility would be targeted for this component. This would include developing appropriate strategies for connecting the various resources in the community and region for common problems. Priorities would likely include coordinating planning efforts for 0-3 year old handicapped children, and assisting in the coordination of appropriate vo-tech, work experience or job placement programs for post-high school handicapped students. As a

result, preschool vocational services and community living training should be more accessible. In the long range, preventative efforts in early identification and treatment or in later attempts to reduce the institutional dependence of adolescents should be highly cost-effective measures.

TECHNOLOGY

A fourth component of the model involves the use of technology for all phases of service delivery to the severely handicapped. This could include the use of telecommunications systems, video, interactive television, and micro-computers for assisting in the processes of identification of resources, assessment, IEP planning and implementation, evaluation of student progress, training, data collection, monitoring, evaluation and feedback.

It is anticipated that many of the problems encountered in appropriate assessment and program planning for the handicapped in sparsely populated areas can be alleviated through the appropriate use of available technology, which has the capability to provide: a) information dissemination networks; b) assessment and consultative assistance from persons having the specific technical expertise required for the individual child (e.g., linkages to multi-state centers serving handicapped persons or University-based centers); c) highly specific, individualized student tasks, each related to objectives, goals and domains, thus assisting IEP development and program planning; d) methods by which handicapped children can communicate and manipulate environments; and e) specific, quantifiable data on student progress which can be used for program feedback locally (teachers, parents, supervisors) or for larger systems planning and evaluation regionally and statewide.

Workshops to train teachers in the use of such technical aids would be conducted by regional level staff. Increased familiarity with available technology should result in higher quality assessments, IEP's and programs.

MANAGEMENT INFORMATION SYSTEM

The model also incorporates a management information system which is based on an efficient and accurate data collection process. This process would be ongoing throughout the model implementation phase and would serve the dual functions of providing information by which to monitor the progress of the implementation phase and to provide feedback to local staff and parents as well as to regional and state level staff for evaluative purposes. For the purpose of evaluation, baseline data would be collected prior to model inception on local practices. Procedures for obtaining, recording and interpreting data regarding all aspects of the educational services received by handicapped students and their subsequent progress should be sufficiently straightforward to be accessible to local staff as well as provide information useful to both local persons for program planning and to regional staff for monitoring and evaluation. Model strategies could be revised or abandoned during the pilot phases if monitoring indicated that it was not effective in reaching the desired objectives. Data such as identification and assessment processes, IEP development, program delivery, placement level, whether the educational setting was locally based or required travel or displacement from home, the extent of integration with nonhandicapped peers, parental involvement, the types of personnel and agencies involved in all phases of the educational program and the reactions of staff and parents to this model of delivery service would be obtained on an ongoing

basis. Much of the data could be recorded on microcomputer disks to facilitate the monitoring process.

The technological base available to school systems and local communities is increasing rapidly. At the present time, some states have the technology to implement such ongoing data collection. All Minnesota schools, for example, have micro-computers, and teaching staff continue to be trained in their use. If the service system is to be responsive both the the local community and parents, as well as to the agencies interested in coordination and technical assistance, this kind of information system is critical.

COST EFFECTIVENESS

Finally, the model has a specific component to evaluate both impact and cost-effectiveness. The impact upon the system as a whole, including both qualitative and quantitative measures, the impact upon specific components of service delivery, and the cost-effectiveness of the model are to be evaluated in this model. The use of microcomputer technology can greatly facilitate the collection and analysis of cost date. It is expected that the proposed model will support a more uniform and comprehensive system of services throughout the rural areas, and that it will result in reduced costs to both the state and the local community.

SUMMARY

In summary, this model suggests that the primary use of specialists to provide direct educational service to handicapped persons is not only impractical in rural areas, but may hinder the development of differentiated levels of capacity to provide service in local communities.

Instead, this model utilizes the resources of a regional system as a key element of a differentiated system for services to rural areas that involves the state education agencies, statewide regional centers, local education units and, most important, the strengths and human capital of the local communities.

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